



Sennheiser Sets New Standards for High-End Audio Receivers Using AWR Software

Microwave Office software featuring APLAC simulator were used in designing Sennheiser's EM 3732 receiver, which is trusted by world famous recording artists like Céline Dion and Alicia Keys.

CUSTOMER BACKGROUND

The Sennheiser Group, established in 1945 in Wedemark, Germany, is the acknowledged world leader in microphone technology, RF-wireless and infrared sound transmission, headphone transducer technology, and in the development of active noise-cancellation.

THE DESIGN CHALLENGE

The RF spectrum in music halls and concert venues is becoming more and more crowded with multiple, simultaneous frequencies and channels. Sennheiser audio equipment is used by many famous recording artists worldwide, and they rely on Sennheiser to help them deliver high quality performances. Therefore, our concert audio receivers must be able to function in this environment and produce excellent sound with no interference.

THE SOLUTION

In order to ensure that our EM 3732 audio receiver would function without interference and deliver the quality of sound required, we designed a varactor-tuned bandpass filter that contained within the preselector of the receiver. The intermodulation behavior of this filter plays a key role in the receiver design, and with Microwave Office software we were able to achieve +20dBm IP3, thus meeting the strict system requirements necessary for the desired performance.

We were able to use the AWR design flow exclusively for the entire design cycle, from the system design, through the circuit design (DC, time-domain, audio, RF noise, and layout), all tasks during the design cycle (verification by measurement, controlling measurement equipment, extracting measurement-based sub circuits, centering of circuits), and, finally, production aspects such as yield optimization. For all the simulations we used the Microwave Office APLAC RF simulator. No other simulator on the market provides such a comprehensive and flexible set of features as APLAC.



Sennheiser EM 3732 twin receiver features a wide switching bandwidth of 90 MHz and many connection options that makes it the most flexible receiver on the market.

Application:
Wireless Microphones
AWR Software:
Microwave Office®
APLAC®



"AWR's solution is unique because the company's tool development is driven by customer demand. It offers all the features that are absolutely necessary for an effective product design. The AWR design flow, along with excellent customer support, is a winning combination."

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